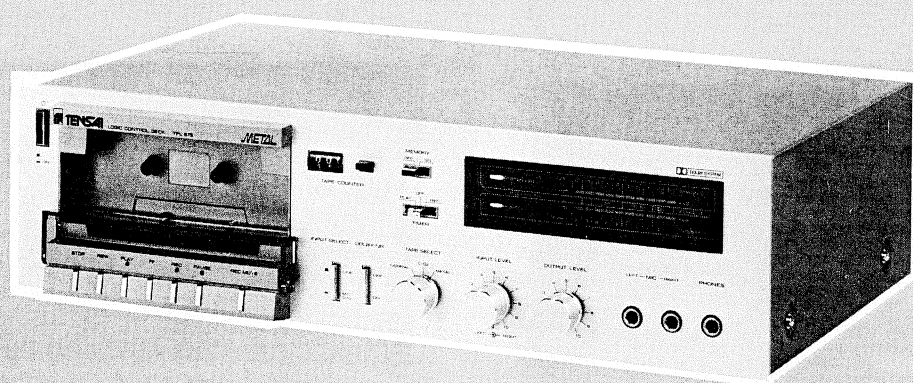


Service Manual

Stereo Cassette Tape Deck

MODEL TFL815



1. SPECIFICATIONS

Type Stereo Cassette Tape Deck
with Full Auto Stop Mechanism

Heads Record/Playback x 1 (AC Bias)
Erase x 1 (AC Erase)

Motor Electric Governor Motor x 1

Wow & Flutter 0.15%

Frequency Response (Overall)

NORMAL 20 — 13 k Hz

CrO₂ 20 — 15 k Hz

METAL 20 — 15 k Hz

Signal to Noise Ratio (DIN)
for recording and playback 56 dB
(Using chrome tape, Dolby IN)

Inputs

MIC —60 dBm/10k ohms (6.5mm ϕ x 2)

LINE —10 dBm/50k ohms (RCA Pin x 1 pair)

DIN 500mV/4.5k ohms (DIN 5p x 1)

Output at 160nWb/m

LINE 390mV/47k ohms (RCA Pin x 1 pair)

PHONES 80mV/8 ohms (6.5mm ϕ x 1, STEREO)

DIN 390mV/47k ohms (DIN 5p x 1)

Fast Forward Time Less than 90 seconds for C-60 tape

Level Displays 10 LEDs display x 1 pair

Features Logic Control Mechanism
with Soft Touch Operation
LED Level Display
* DOLBY NR Switch
Metal Tape Position
Memory Stop on REW Switch
Timer Rec/Playback Switch
Recording Mute

Power Supply ~ 220V 50 Hz
(Continental Europe)
~ 240V 50 Hz (UK)

Dimensions Approx. 430(W) x 109(H) x 250(D) mm

Weight Approx. 6.5 kg

*Dolby is a trade mark of Dolby Laboratories Inc.
Subject to change without notice.

2. DISASSEMBLY INSTRUCTIONS

- (1) **Top cover removal**
Remove six screws on the both sides and rear of the set and lift up the top cover.
- (2) **Bottom cover removal**
Remove a screw on the center of the bottom cover and lift the bottom cover.
- (3) **Front panel removal**
Remove three rotary knobs, and two wire connector shown in Figure 1.
Remove six screws (A) from the top and bottom as shown in Figures 1 and 2, and the front panel can be removed.
- (4) **Mechanism assembly removal**
Remove five screws (B) from top and front as shown in Figure 3.

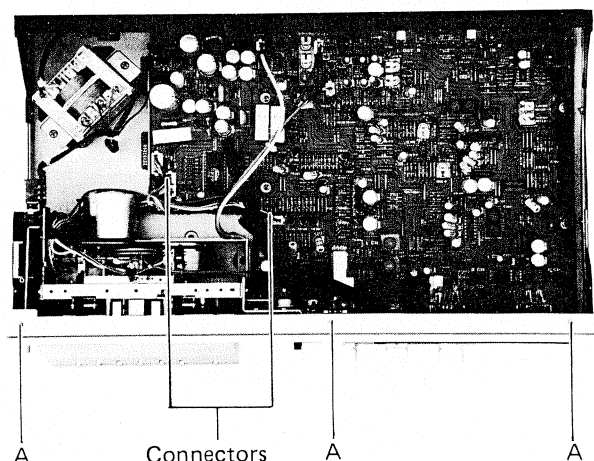


Figure 1

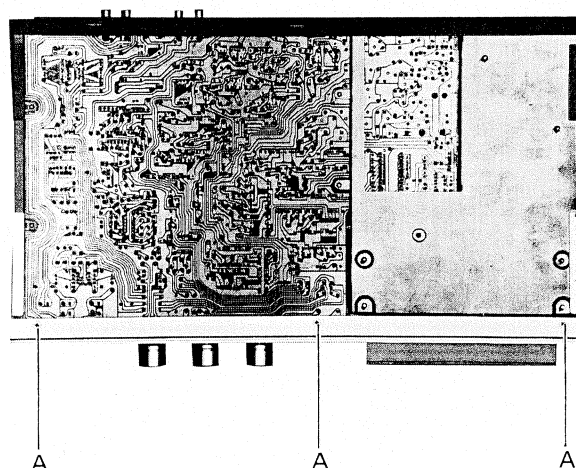


Figure 2

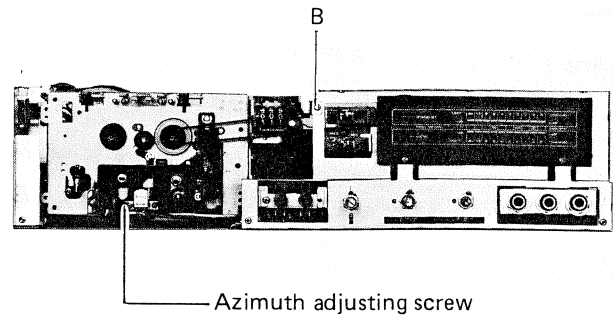
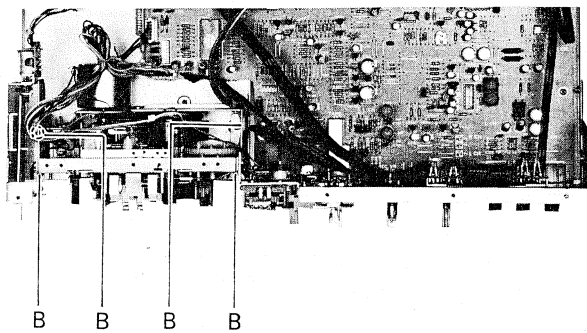


Figure 3

3. ALIGNMENT INSTRUCTIONS

IDLE CURRENT

TEST EQUIPMENT

- (1) AF oscillator.
- (2) VTVM (AC).
- (3) Dummy loads (4 ohms above 1W).

ALIGNMENT (For alignment point, See Figures 3 and 4.)

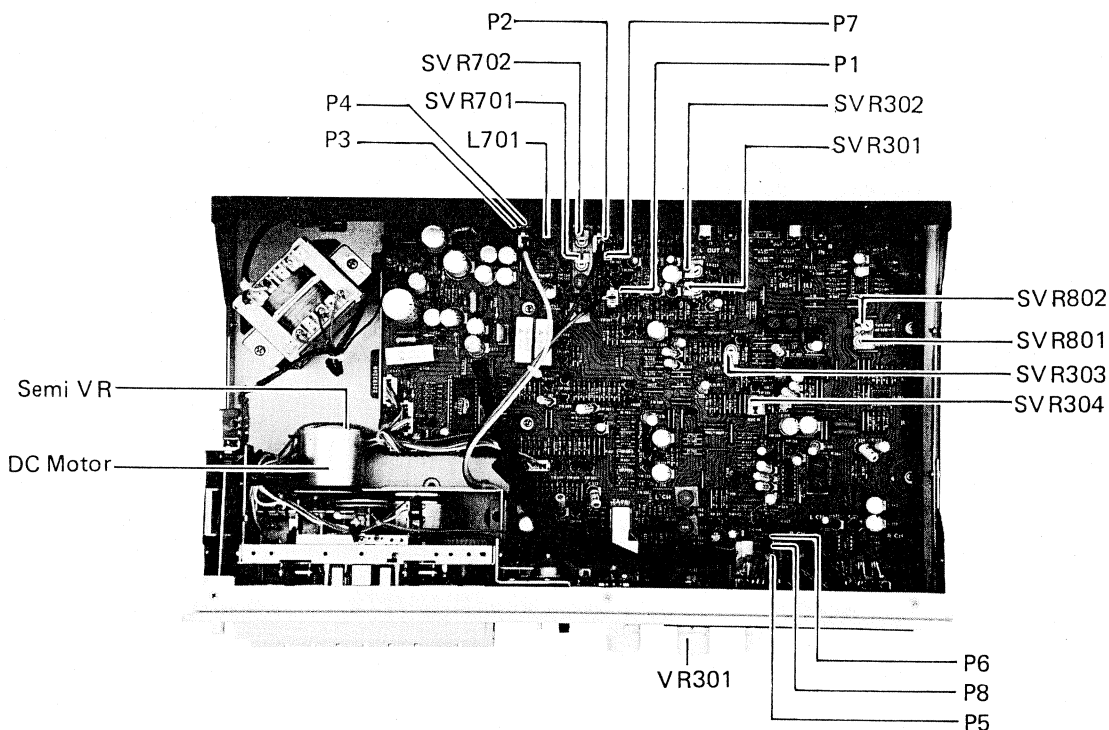
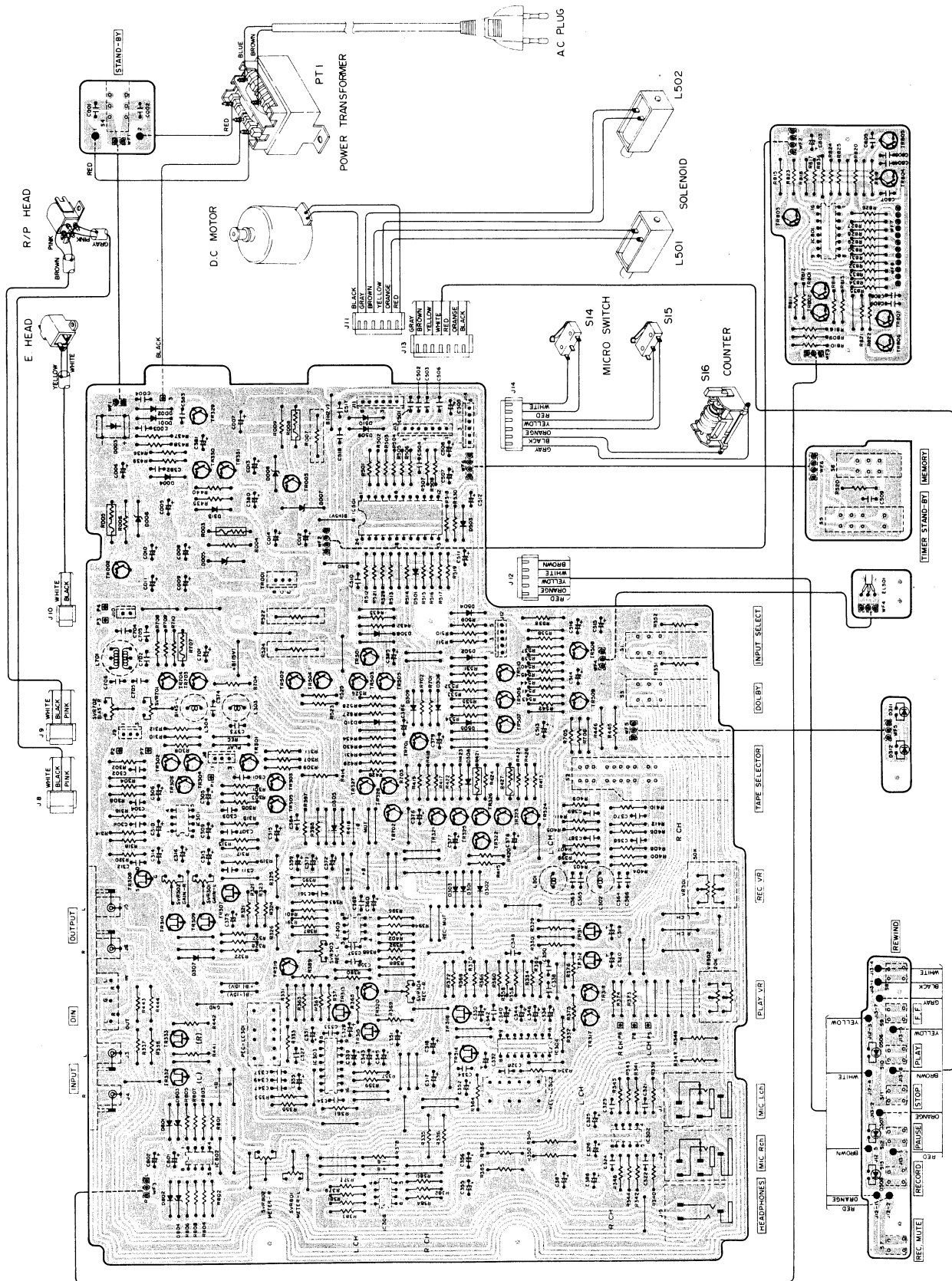


Figure 4

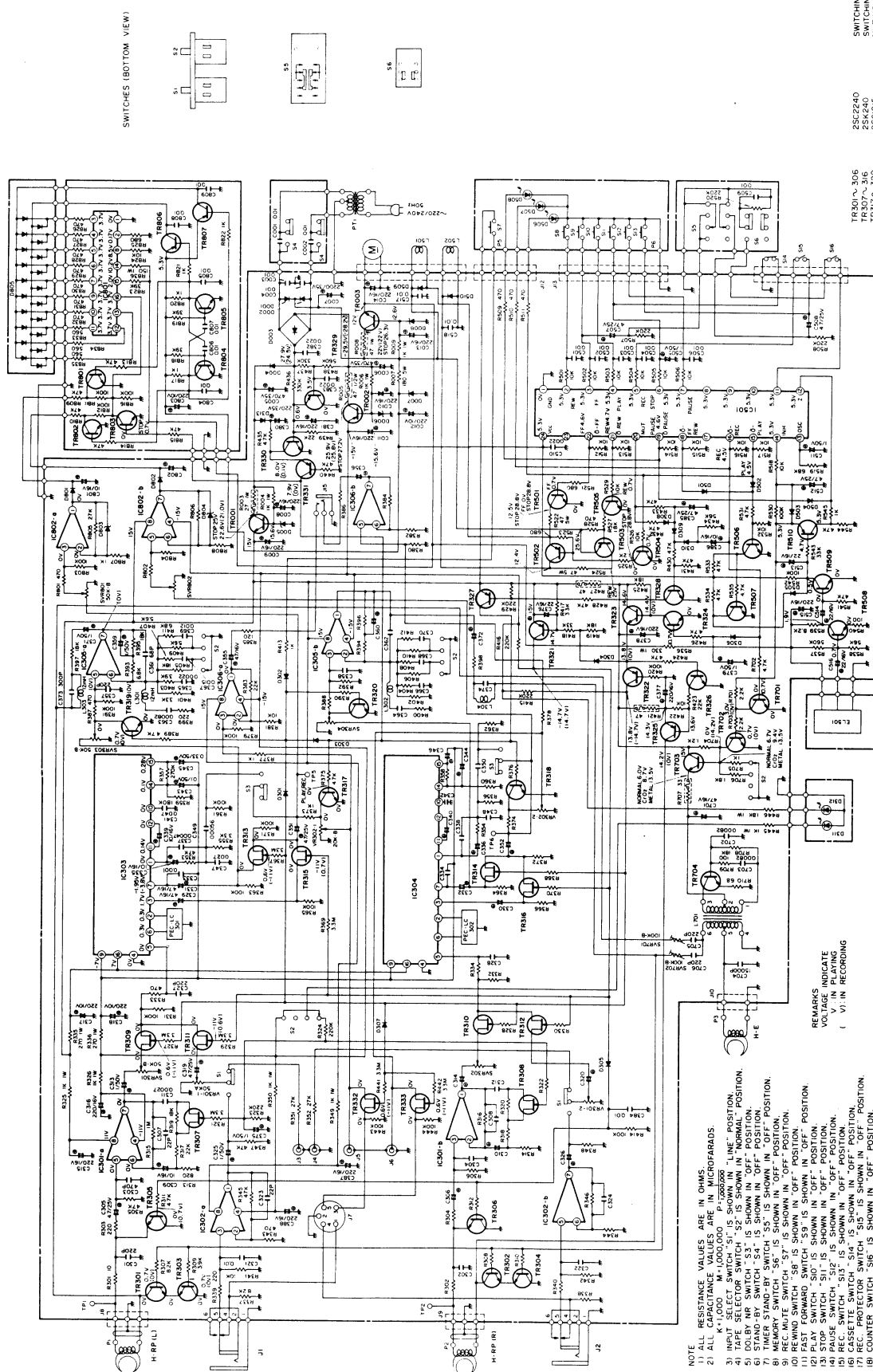
ALIGNMENT CHART

Step	Item	Adjusting Point	Performance	Test Point	Test Equipment	Remarks for Adjustment	Connection
1	TAPE Speed	Semi-VR on DC motor	TEST TAPE MTT-111 (3000 Hz) Tape Play Back	Right or Left Output	VTVM Frequency-Counter	Frequency 3000 Hz	Output L ch or R ch Frequency Counter Set
2	Record and Playback head azimuth adjustment	Azimuth adjusting screw	TEST TAPE MTT-114 (10 kHz) Tape Play Back	Right and Left Output	VTVM	To maximum reading of VTVM against lower output channel of L ch or R ch	Output L ch and R ch VTVM Set
3	TAPE bias Frequency	L701	BLANK TAPE Recording and Pause	Tape Deck P.C.B. Poi and P7 (L ch) Poi and (R ch)	VTVM Frequency-Counter	Frequency 84 kHz	Lch Rch P1 P2 P7 VTVM (Amp.) Frequency Counter
4	TAPE bias Current	SVR701 SVR702	Same as Step 3	Same as Step 3	VTVM	NORMAL position 3.7mV CrO ₂ position 5mV METAL position 7.8mV	Same as Step 3
5	Level display reading	a) VR301 b) SVR801 SVR802	Same as Step 3	Tape Deck P.C.B. P5 and P8 (L ch) P6 and P8 (R ch)	AFO VTVM	a) Input signal 1kHz 245mV Output level 410mV b) Level display 0 reading	INPUT P5 (L ch) P6 (R ch) AFO Set P8 VTVM
6	Recording Current Adjustment	a) VR301 b) SVR303 SVR304	BLANK TAPE Recording and pause	Same as Step 3	AFO VTVM	Stop the bias oscillation a) Input signal 1 kHz 245mV Output level 410mV b) 0.46mV output on test point at NORMAL position	P3 P4 10μF/50V PCB-AF P5 (L ch) P6 (R ch) AFO Set P8 VTVM P7 INPUT P1 (Lch) P2 (Rch) VTVM
7	PLAYBACK Gain Adjustment	SVR301 SVR302	TEST TAPE MTT-212C PLAY BACK position	Same as Step 5	VTVM	Output Level on test point 410mV	P5 (L ch) or P6 (R ch) VTVM

4. PRINTED CIRCUIT BOARD BOTTOM VIEW AND WIRING



5. SCHEMATIC DIAGRAM



55K2340	SWITCHING
55K240	MUTING
55K815	CONTROL
55K815	CONTROL
55K970	CONTROL
55K815	CONTROL
55K815	CONTROL
55K240	SWITCHING
55K2336	CONTROL
55K815	CONTROL
55K815	CONTROL
55K815	CONTROL
55K2336	BIAS OSC
55K815	BIAS OSC
55K815	METER SWITCHING
55K815	METER SWITCHING
55K815	METER SWITCHING
55K362	REGULATOR
55K2336	REGULATOR
55K2336	REGULATOR

EL501	DMOIA	SENSOR	TR
03001 ~ 310	I5555V	CONTROL	TR2001 ~ 106
0311	GL3P69	METAL INDICATE	TR307 ~ 316
0312	GL3P70	METAL INDICATE	TR317 ~ 320
0313	S2778	RECTIFIER	TR321 ~ 327
05001 ~ 505	I5555V	CONTROL	TR323 ~ 333
0506	GL2P71	FLY WHEEL	TR501
0507	GL2P81	FLY WHEEL	TR503
0508 ~ 0508	GL2P81	FLY WHEEL	TR504 ~ 509
0509 ~ 510	S2778	RECTIFIER	TR510
0511 ~ 0511	S2778	RECTIFIER	TR702
0512 ~ 0512	WZ094	FLY WHEEL	TR703
06001 ~ 002	TLMB02	LEVEL METER	TR704
0603	S2778	RECTIFIER	TR801, B02
0604	S2778	RECTIFIER	TR803, B05
0605	S2778	RECTIFIER	TR806, B07
0606 ~ 0606	WZ150	REGULATOR	TR902
0607 ~ 0607	WZ150	REGULATOR	TR903
0608 ~ 0608	WZ150	REGULATOR	TR904

Diagram illustrating the power supply section of a vacuum tube radio receiver. The circuit includes a transformer with multiple secondary windings connected to various components:

- B+**: Connected to the positive terminal of the filter capacitor (C1).
- F**: Filament voltage, connected to the heaters of the 6X4, 6AR5, and 6AV6 tubes.
- L**: Line (Neutral), connected to one end of the primary winding and ground.
- N**: Neutral, connected to the other end of the primary winding and ground.
- R**: Resistor, connected between the B+ line and ground.
- C1**: Filter capacitor, connected across the B+ line and ground.
- Vacuum Tubes**: 6X4 (Rectifier), 6AR5 (Detector/Tuner), 6AV6 (Audio Amplifier), and 6BD6 (Meter/Mixer).

The diagram also shows the internal wiring of the transformer, including the primary winding and several secondary windings labeled with their respective voltages (e.g., 0-250V, 0-100V, 0-50V, 0-25V, 0-12.5V, 0-6.25V, 0-3.125V, 0-1.56V, 0-0.78V, 0-0.39V, 0-0.19V, 0-0.09V, 0-0.04V, 0-0.02V, 0-0.01V).

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E.C.B.

TRANSISTORS (BOTTOM VIEW)

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E.C.B.

TRANSISTORS (BOTTOM VIEW)

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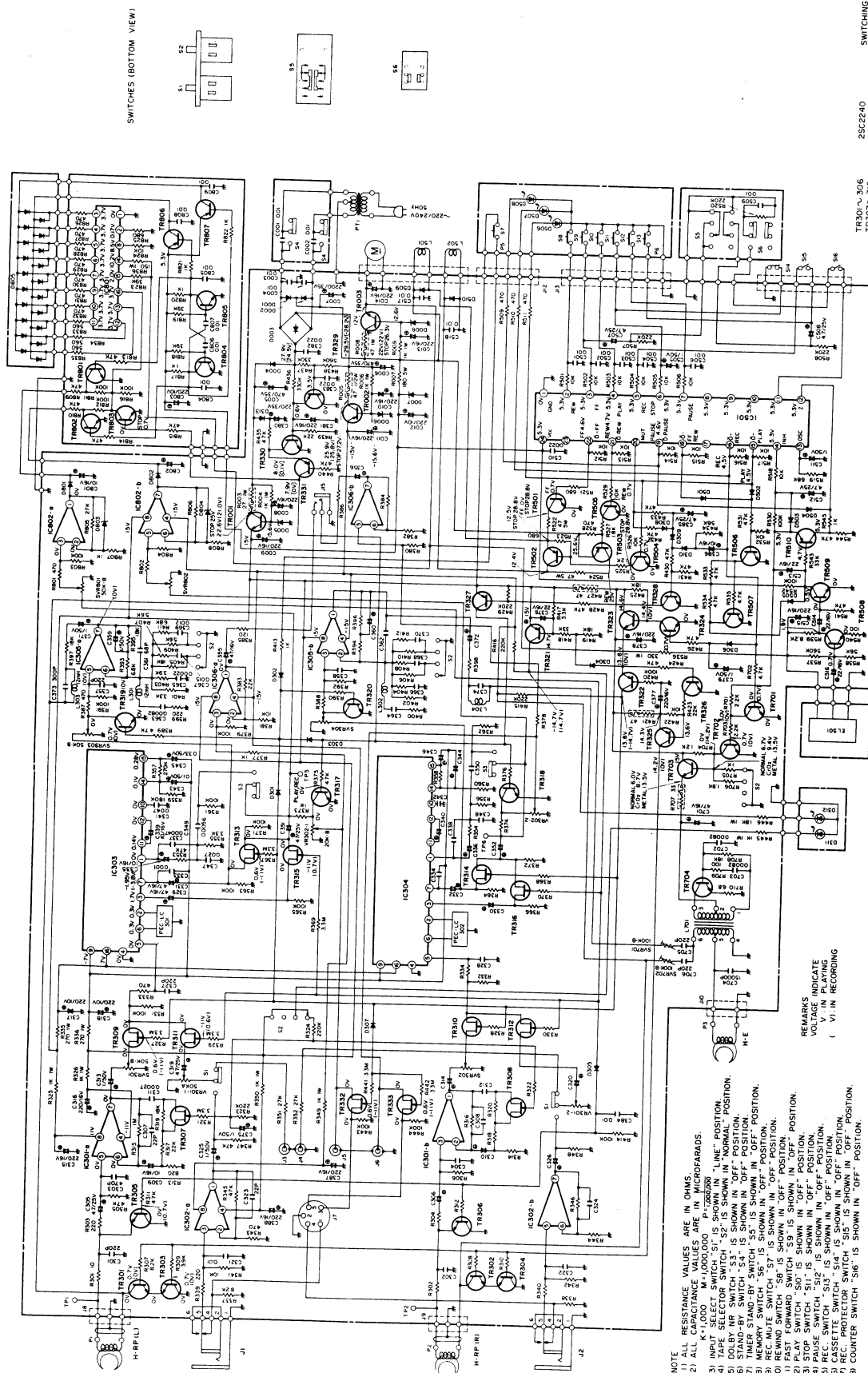
E.C.B.

TRANSISTORS (BOTTOM VIEW)

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IC 301, 302
IC 303, 306, 402

5. SCHEMATIC DIAGRAM



SWITCHING

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TR315~316

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TR997~998

TR999~1000

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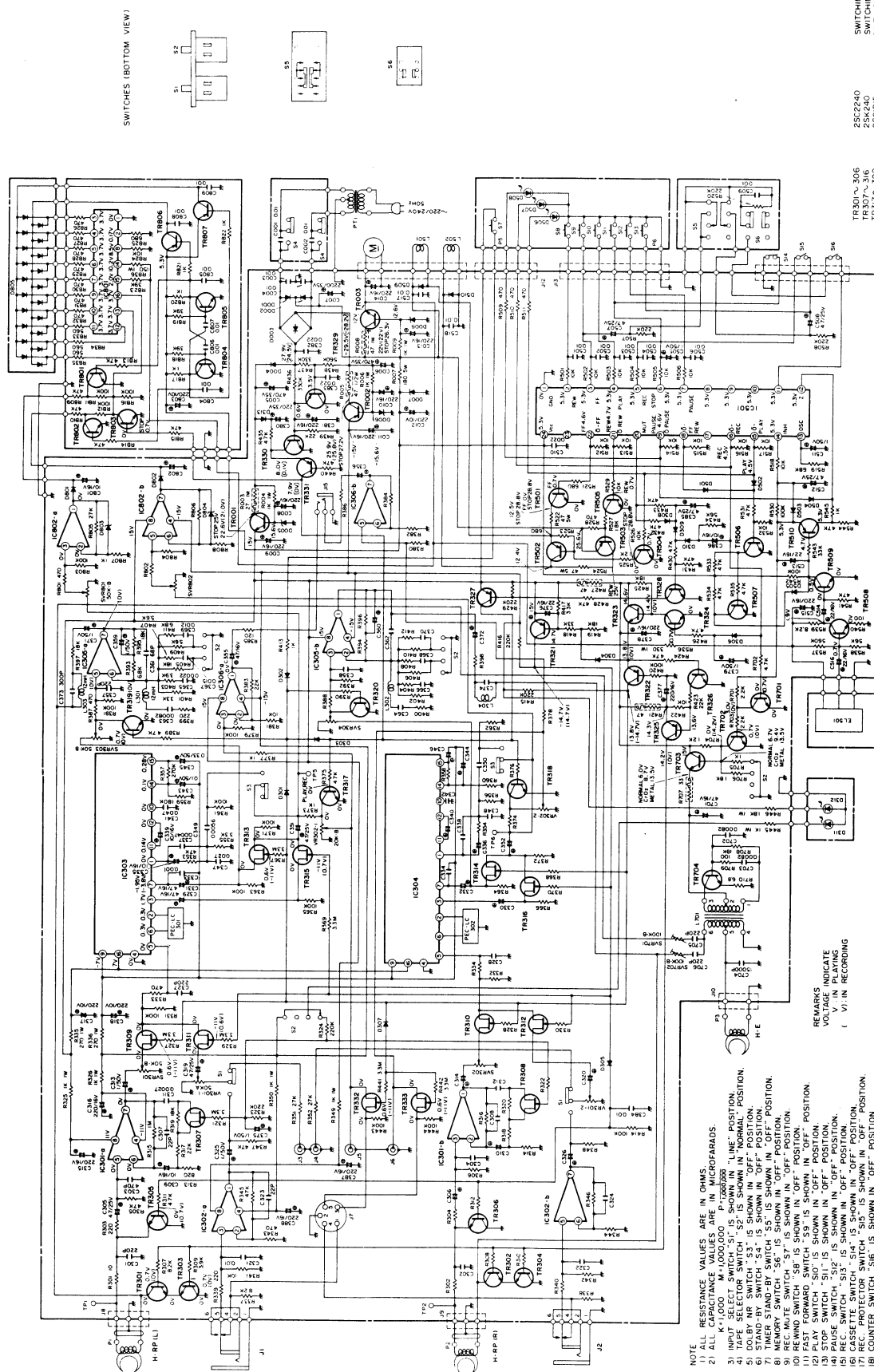
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D725

D726

D72

5. SCHEMATIC DIAGRAM




SWITCHING
SWITCHING
MUTING
CONTROL
CONTROL
CONTROL
CONTROL
CONTROL
CONTROL
SWITCHING
CONTROL
CONTROL
CONTROL
CONTROL
CONTROL
BIAS OSC
METER SWI
MUTING
METER SWI
METER SWI
REGULATOR
REGULATOR

TR301~306	25C2240
TR307~312	25K240
TR313~316	25C240
TR317~326	25A015
TR327~328	25A015
TR329~332,327	25C1815
TR333,354	25C1815
TR334,354	25A970
TR335	25C1815
TR326,328	25A1015
TR329,331	25A1015
TR330	25C1815
TR332,333	25C1815
TR334,350	25C2236
TR351,503	25K240
TR352,503	25C2236
TR353,503	25A966
TR504~509	25C1815
TR510	25A015
TR511	25A015
TR701,702	25C1815
TR703	25C2120
TR704	25C2236
TR801,802	25C1815
TR803	25C1815
TR806,805	25C1815
TR807	25C1815
TR808	25D325
TR809	25A966
TR802	25C2236
TR803	25C2236

EL501	DM104	SENSOR
300~310	IS555V	CONTROL
9331	GP969	METAL INDICATE
9313	GP969	STAND BY INDICATE
505	GP969	CONTROL
505	IS555V	CONTROL
505	GP2PI	PLAY IN
2506	GP2PI	RECORD IND.
2507	GP4PI	RECORD IND.
2507	GP4PI	FLY WHEEL
2509	MPX-B	FLY WHEEL
310	MPX-B	RECIFIER
801	801	RECIFIER
804	X2094	LEVEL ME
804	954902	LEVEL ME
802	954902	RECIFIER
802	SWB	RECIFIER
802	SWB	RECIFIER
004	55277B	REGULATOR
006	X2500	REGULATOR
006	W2100	REGULATOR
008	W2100	REGULATOR


301	NJM45600X	EQ AMP
302	NJM45600X	MIC AMP
303	N6468880X	DOLBY-NR
304	N6468880X	RECORDING
305	NJM45560X	HEADPHONE AMP
306	NJM45560	CONTROL
501	TC921P	HEADPHONE
502	T4702AP	METER DRIVE
602	NJM45560	METER DRIVE

Figure 1 consists of two schematic diagrams of cell culture wells. The top diagram, labeled 'IC50', shows a rectangular well with a horizontal line across the middle, representing a cell layer. The bottom diagram, labeled 'IC50i', shows a similar rectangular well but with a circular cell layer in the center. Both diagrams are labeled with 'IC50' and 'IC50i' respectively.



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1C301, 302
 1C305, 306, 802



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TR307, 316
 TR332, 333

NOTE: RESISTANCE VALUES ARE IN OHMS.

1. ALL CAPACITANCE VALUES ARE IN MICROFARADS.

2. K=1,000 M=1,000,000 P=100,000,000

3. WIPER POSITION

4. TAPE SELECTOR SWITCH "S2" IS SHOWN IN "NORMAL" POSITION

5. DOUBLY RUN SWITCH "S3" IS SHOWN IN "OFF" POSITION

6. STAND-BY SWITCH "S4" IS SHOWN IN "OFF" POSITION

7. MECHANICAL STAND-BY SWITCH "S5" IS SHOWN IN "OFF" POSITION

8. REC. MUTE SWITCH "S6" IS SHOWN IN "OFF" POSITION

9. REC. MUTE SWITCH "S7" IS SHOWN IN "OFF" POSITION

10. REWIND SWITCH "S8" IS SHOWN IN "OFF" POSITION

11. FAST FORWARD SWITCH "S9" IS SHOWN IN "OFF" POSITION

12. STOP SWITCH "S10" IS SHOWN IN "OFF" POSITION

13. PAUSE SWITCH "S11" IS SHOWN IN "OFF" POSITION

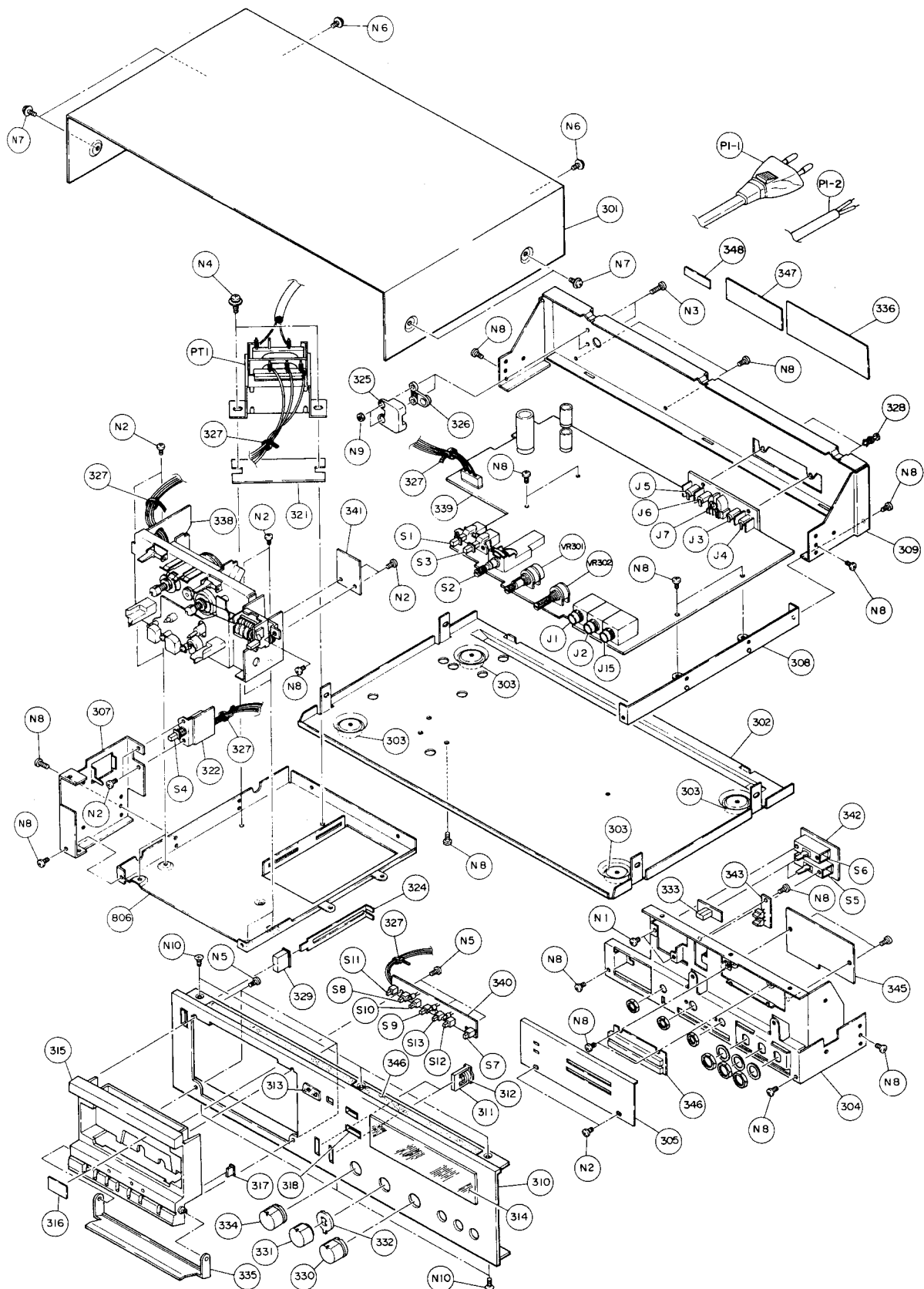
14. REC. SWITCH "S12" IS SHOWN IN "OFF" POSITION

15. CASSETTE SWITCH "S14" IS SHOWN IN "OFF" POSITION

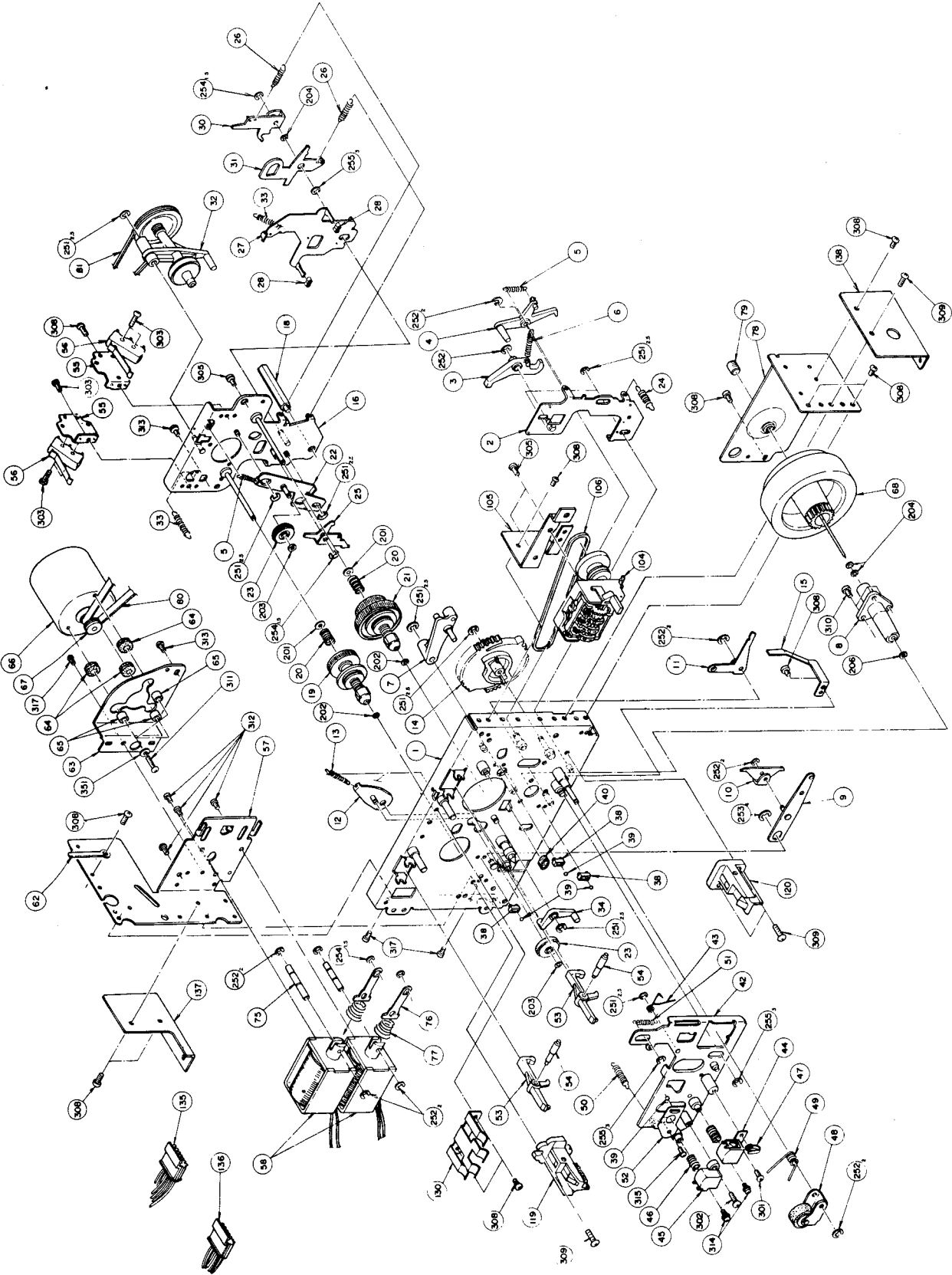
16. COUNTER SWITCH "S15" IS SHOWN IN "OFF" POSITION

6. EXPLODED VIEW AND PARTS LISTS

EXPLODED VIEW (CABINET)



EXPLODED VIEW (MECHANISM)



PARTS LIST

ELECTRICAL PARTS

Symbol No.	Part No.	Description
ICs		
IC301	22114866	NJM4560DX
IC302	22114866	NJM4560DX
IC303	22114681	NE646B
IC304	22114681	NE646B
IC305	22114863	NJM4558DX
IC306	22114865	NJM4556D
IC501	40411210	TC9121P
IC801	40355210	TA7612AP
IC802	22114422	4558D
TRANSISTORS & DIODES		
Symbol No. with TR: Transistor		
Symbol No. with D: Diode		
TR001	22114478	2SD325-E
TR002	36533260	2SA966A-O
TR003	36235560	2SC2236A-O
TR301	36325845	2SC2240-BL
TR302	36325845	2SC2240-BL
TR303	36325845	2SC2240-BL
TR304	36325845	2SC2240-BL
TR305	36325845	2SC2240-BL
TR306	36325845	2SC2240-BL
TR307	36044630	2SK246-GR
TR308	36044630	2SK246-GR
TR309	36044630	2SK246-GR
TR310	36044630	2SK246-GR
TR311	36044630	2SK246-GR
TR312	36044630	2SK246-GR
TR313	36044630	2SK246-GR
TR314	36044630	2SK246-GR
TR315	36044630	2SK246-GR
TR316	36044630	2SK246-GR
TR317	36317480	2SC1815-BL
TR318	36317480	2SC1815-BL
TR319	36317480	2SC1815-BL
TR320	36317480	2SC1815-BL
TR321	36534060	2SA1015-GR
TR322	36534060	2SA1015-GR
TR323	36317480	2SC1815-BL
TR324	36317480	2SC1815-BL
TR325	36533640	2SA970-BL
TR326	36317480	2SC1815-BL
TR327	36534060	2SA1015-GR
TR328	36317480	2SC1815-BL
TR329	36534060	2SA1015-GR
TR330	36317480	2SC1815-BL
TR331	36534060	2SA1015-GR
TR332	36044630	2SK246-GR

Symbol No.	Part No.	Description
TR333	36044630	2SK246-GR
TR501	36325560	2SC2236-A
TR502	36533260	2SA966A-O
TR503	36533260	2SA966A-O
TR504	36317460	2SC1815-GR
TR505	36317460	2SC1815-GR
TR506	36317460	2SC1815-GR
TR507	36317460	2SC1815-GR
TR508	36317460	2SC1815-GR
TR509	36317460	2SC1815-GR
TR510	36534060	2SA1015-GR
TR701	36317460	2SC1815-GR
TR702	36317460	2SC1815-GR
TR703	36321220	2SC2120-O
TR704	36325560	2SC2236-O
TR801	36325560	2SC2236-O
TR802	36325560	2SC2236-O
TR803	36325560	2SC2236-O
TR804	36325560	2SC2236-O
TR805	36325560	2SC2236-O
TR806	36534060	2SA1015-GR
TR807	36534060	2SA1015-GR
D001	37978380	S5277B
D002	37978380	S5277B
D003	22115631	S1WB10
D004	37978380	S5277B
D005	22115220	WZ150
D006	22115220	WZ150
D007	22115647	BZ050
D008	22115306	WZ120
D301	37246745	1S1555V-TP3
D302	37246745	1S1555V-TP3
D303	37246745	1S1555V-TP3
D304	37246745	1S1555V-TP3
D305	37246745	1S1555V-TP3
D306	37246745	1S1555V-TP3
D307	37246745	1S1555V-TP3
D308	37246745	1S1555V-TP3
D309	37246745	1S1555V-TP3
D310	37246745	1S1555V-TP3
D311	22115686	GL9PG9
D312	22115686	GL9PG9
D313	37978380	S5277B
D501	37246745	1S1555V-TP3
D502	37246745	1S1555V-TP3
D503	37246745	1S1555V-TP3
D504	37246745	1S1555V-TP3
D505	37246745	1S1555V-TP3
D506	22115632	GL2PR1
D507	22115632	GL2PR1

Symbol No.	Part No.	Description
D508	22115632	GL2PR1
D509	37978380	S5277B
D510	37978380	S5277B
D801	22115506	MPX-B-TPS
D802	22115506	MPX-B-TPS
D803	22115648	XZ094
D804	22115648	XZ094
D805	38636020	TLM8102
CAPACITORS Tolerance: D: ± 0.5 PF, J: $\pm 5\%$, K: $\pm 10\%$, M: $\pm 20\%$ P: + 100 to -0%, Z: + 80 to -20%, G: $\pm 2\%$ (N): Non polarity type		
C001	22342103	Ceramic 0.01mfd, Z
C002	22342103	Ceramic 0.01mfd, Z
C003	22342103	Ceramic 0.01mfd, Z
C004	22342103	Ceramic 0.01mfd, Z
C005	22447471	Electrolytic 470mfd/35WV, P
C006	22447471	Electrolytic 470mfd/35WV, P
C007	22447222	Electrolytic 2200mfd/35WV, P
C008	22445221	Electrolytic 220mfd/16WV, P
C009	22445221	Electrolytic 220mfd/16WV, P
C010	22445221	Electrolytic 220mfd/16WV, P
C011	22445221	Electrolytic 220mfd/16WV, P
C012	22443221	Electrolytic 220mfd/10WV, P
C013	22445221	Electrolytic 220mfd/16WV, P
C014	22445221	Electrolytic 220mfd/16WV, P
C301	22361221	Ceramic 220 PF, K
C302	22361221	Ceramic 220 PF, K
C303	22361471	Ceramic 470 PF, K
C304	22361471	Ceramic 470 PF, K
C305	22440396	Electrolytic 4.7mfd/25WV, P
C306	22440396	Electrolytic 4.7mfd/25WV, P
C307	22361220	Ceramic 22 PF, J
C308	22361220	Ceramic 22 PF, J
C309	22440397	Electrolytic 10mfd/16WV, P
C310	22440397	Electrolytic 10mfd/16WV, P
C311	22371272	Mylar 0.0027mfd, J
C312	22371272	Mylar 0.0027mfd, J
C313	22440314	Electrolytic 1mfd/50WV, P
C314	22440314	Electrolytic 1mfd/50WV, P
C315	22445221	Electrolytic 220mfd/16WV, P
C316	22445221	Electrolytic 220mfd/16WV, P
C317	22443221	Electrolytic 220mfd/10WV, P
C318	22443221	Electrolytic 220mfd/10WV, P
C319	22447479	Electrolytic 4.7mfd/35WV, P
C320	22447479	Electrolytic 4.7mfd/35WV, P
C321	22342103	Ceramic 0.01mfd, Z
C322	22342103	Ceramic 0.01mfd, Z

Symbol No.	Part No.	Description
C323	22361220	Ceramic 22 PF, J
C324	22361220	Ceramic 22 PF, J
C325	22440314	Electrolytic 1mfd/50WV, P
C326	22440314	Electrolytic 1mfd/50WV, P
C327	22361221	Ceramic 220 PF, K
C328	22361221	Ceramic 220 PF, K
C329	22447479	Electrolytic 4.7mfd/35WV, P
C330	22447479	Electrolytic 4.7mfd/35WV, P
C331	22447479	Electrolytic 4.7mfd/35WV, P
C332	22447479	Electrolytic 4.7mfd/35WV, P
C333	22343102	Ceramic 0.001mfd, M
C334	22343102	Ceramic 0.001mfd, M
C335	22447100	Electrolytic 10mfd/35WV, P
C336	22447100	Electrolytic 10mfd/35WV, P
C337	22371472	Mylar 0.0047mfd, J
C338	22371472	Mylar 0.0047mfd, J
C339	22447100	Electrolytic 10mfd/35WV, P
C340	22447100	Electrolytic 10mfd/35WV, P
C341	22371473	Mylar 0.047 mfd, J
C342	22371473	Mylar 0.047mfd, J
C343	22448108	Electrolytic 0.1mfd/50WV, P
C344	22448108	Electrolytic 0.1mfd/50WV, P
C345	22448338	Electrolytic 0.33mfd/50WV, P
C346	22448338	Electrolytic 0.33mfd/50WV, P
C347	22371273	Mylar 0.027mfd, J
C348	22371273	Mylar 0.027mfd, J
C349	22371562	Mylar 0.0056 PF, K
C350	22371562	Mylar 0.0056 PF, K
C351	22447479	Electrolytic 4.7mfd/35WV, P
C352	22447479	Electrolytic 4.7mfd/35WV, P
C355	22445470	Electrolytic 47mfd/16WV, P
C356	22445470	Electrolytic 47mfd/16WV, P
C357	22361221	Ceramic 220 PF, K
C358	22361221	Ceramic 220 PF, K
C359	22448109	Electrolytic 1mfd/50WV, P
C360	22448109	Electrolytic 1mfd/50WV, P
C361	22361680	Ceramic 68 PF, K
C362	22361680	Ceramic 68 PF, K
C363	22371822	Mylar 0.0082mfd, J
C364	22371822	Mylar 0.0082mfd, J
C365	22371222	Mylar 0.0022mfd, J
C366	22371222	Mylar 0.0022mfd, J
C367	22371150	Mylar 0.015mfd, J
C368	22371150	Mylar 0.015mfd, J
C369	22371123	Mylar 0.012mfd, J
C370	22371123	Mylar 0.012mfd, J
C371	22448109	Electrolytic 1mfd/50WV, P
C372	22448109	Electrolytic 1mfd/50WV, P
C373	22362301	Ceramic 300 PF, K
C374	22362301	Ceramic 300 PF, K
C375	22448109	Electrolytic 1mfd/50WV, P
C376	22448220	Electrolytic 22mfd/25WV, P
C377	22445221	Electrolytic 220mfd/16WV, P

Symbol No.	Part No.	Description
C378	22445221	Electrolytic 220mfd/16WV,P
C379	22448109	Electrolytic 1mfd/50WV, P
C380	22447221	Electrolytic 220mfd/35WV,P
C381	22445221	Electrolytic 220mfd/16WV,P
C382	22371223	Mylar 0.022mfd, J
C383	22371223	Mylar 0.022mfd, J
C384	22342103	Ceramic 0.01mfd, Z
C385	22447479	Electrolytic 4.7mfd/35WV, P
C386	22447100	Electrolytic 10mfd/35WV, P
C387	22445221	Electrolytic 220mfd/16WV,P
C388	22445221	Electrolytic 220mfd/16WV,P
C501	22342103	Ceramic 0.01mfd, Z
C502	22342103	Ceramic 0.01mfd, Z
C503	22342103	Ceramic 0.01mfd, Z
C504	22342103	Ceramic 0.01mfd, Z
C505	22448109	Electrolytic 1mfd/50WV, P
C506	22342103	Ceramic 0.01mfd, Z
C507	22447479	Electrolytic 4.7mfd/35WV, P
C508	22447479	Electrolytic 4.7mfd/35WV, P
C509	22342103	Ceramic 0.01mfd, Z
C510	22342223	Ceramic 0.022mfd, Z
C511	22440314	Electrolytic 1mfd/50WV, P
C512	22447479	Electrolytic 4.7mfd/35WV, P
C513	22446220	Electrolytic 22mfd/25WV, P
C514	22446220	Electrolytic 22mfd/25WV, P
C515	22445221	Electrolytic 220mfd/16WV, P
C516	22446220	Electrolytic 22mfd/25WV, P
C517	22342103	Ceramic 0.01mfd, Z
C518	22342103	Ceramic 0.01mfd, Z
C701	22445470	Electrolytic 47mfd/16WV, P
C702	22371822	Mylar 0.082mfd, J
C703	22371822	Mylar 0.0082mfd, J
C704	22321182	Polypropylene 1500PF, J
C705	22361221	Ceramic 220PF, K
C706	22361221	Ceramic 220PF, K
C801	22447100	Electrolytic 10mfd/35WV, P
C802	22447100	Electrolytic 10mfd/35WV, P
C803	22443221	Electrolytic 220mfd/10WV, P
C804	22342103	Ceramic 0.01mfd, Z
C805	22342103	Ceramic 0.01mfd, Z
C806	22342103	Ceramic 0.01mfd, Z
C807	22342103	Ceramic 0.01mfd, Z
C808	22342103	Ceramic 0.01mfd, Z
C809	22342103	Ceramic 0.01mfd, Z

Symbol No.	Part No.	Description
RESISTORS		
All fixed resistors are ¼W, ±5%, carbon resistor unless otherwise noted.		
olerance: G: ±2%, J: ±5%, K: ±10%		
R003	22500300	Fusible 27 ohm, 1W, J
R004	22571102	Metal Oxide 1K ohm, 1W, J
R005	22500267	Fusible 47 ohm, ½W, J
R006	22571102	Metal Oxide 1K ohm, 1W, J
R007	22500270	Cemented 180 ohm, 5W, J
R008	22500301	Fusible 47 ohm, 1W, J
R009	22571102	Metal Oxide 1K ohm, 1W, J
R301	22543100	10 ohm
R302	22543100	10 ohm
R303	22543221	220 ohm
R304	22543221	220 ohm
R305	22543473	47K ohm
R306	22543473	47K ohm
R307	22543822	8.2K ohm
R308	22543822	8.2K ohm
R309	22543392	3.9K ohm
R310	22543392	3.9K ohm
R311	22543472	4.7K ohm
R312	22543472	4.7K ohm
R313	22543821	820 ohm
R314	22543821	820 ohm
R315	22543105	1M ohm
R316	22543105	1M ohm
R317	22543223	22K ohm
R318	22543223	22K ohm
R319	22543183	18K ohm
R320	22543183	18K ohm
R321	22543335	3.3M ohm
R322	22543335	3.3M ohm
R323	22543224	220K ohm
R324	22543224	220K ohm
R325	22571102	Metal Oxide 1K ohm, 1W, J
R326	22571102	Metal Oxide 1K ohm, 1W, J
R327	22543335	3.3M ohm
R328	22543335	3.3M ohm
R329	22543335	3.3M ohm
R330	22543335	3.3M ohm
R331	22543104	100K ohm
R332	22543104	100K ohm
R333	22543471	470 ohm
R334	22543471	470 ohm
R335	22571271	Metal Oxide 270 ohm, 1W, J
R336	22571271	Metal Oxide 270 ohm, 1W, J
R337	22543822	8.2K ohm
R338	22543822	8.2K ohm
R339	22543221	220 ohm
R340	22543221	220 ohm
R341	22543103	10K ohm

Symbol No.	Part No.	Description
R342	22543103	10K ohm
R343	22543471	470 ohm
R344	22543471	470 ohm
R345	22543473	47K ohm
R346	22543473	47K ohm
R347	22543473	47K ohm
R348	22543473	47K ohm
R349	22571102	Metal Oxide 1K ohm, 1W, J
R350	22571102	Metal Oxide 1K ohm, 1W, J
R351	22543273	27K ohm
R352	22543273	27K ohm
R353	22543473	47K ohm
R354	22543473	47K ohm
R355	22543332	3.3K ohm
R356	22543332	3.3K ohm
R357	22543274	270K ohm
R358	22543274	270K ohm
R359	22543224	220K ohm
R360	22543224	220K ohm
R361	22543104	100K ohm
R362	22543104	100K ohm
R363	22543104	100K ohm
R364	22543104	100K ohm
R365	22543104	100K ohm
R366	22543104	100K ohm
R367	22543335	3.3M ohm
R368	22543335	3.3M ohm
R369	22543335	3.3M ohm
R370	22543335	3.3M ohm
R371	22543104	100K ohm
R372	22543104	100K ohm
R373	22543102	1K ohm
R374	22543102	1K ohm
R375	22543472	4.7K ohm
R376	22543472	4.7K ohm
R377	22543102	1K ohm
R378	22543102	1K ohm
R379	22543104	100K ohm
R380	22543104	100K ohm
R381	22543103	10K ohm
R382	22543103	10K ohm
R383	22543223	22K ohm
R384	22543223	22K ohm
R385	22543121	120 ohm
R386	22543121	120 ohm
R387	22543471	470 ohm
R388	22543471	470 ohm
R389	22543472	4.7K ohm
R390	22543472	4.7K ohm
R391	22543104	100K ohm
R392	22543104	100K ohm
R393	22543682	6.8K ohm
R394	22543682	6.8K ohm

Symbol No.	Part No.	Description
R395	22543183	18K ohm
R396	22543183	18K ohm
R397	22543183	18K ohm
R398	22543183	18K ohm
R399	22543221	220 ohm
R400	22543221	220 ohm
R401	22543332	3.3K ohm
R402	22543332	3.3K ohm
R403	22543392	3.9K ohm
R404	22543392	3.3K ohm
R405	22543183	18K ohm
R406	22543183	18K ohm
R407	22543562	5.6K ohm
R408	22543562	5.6K ohm
R409	22543562	5.6K ohm
R410	22543562	5.6K ohm
R411	22543682	6.8K ohm
R412	22543682	6.8K ohm
R413	22543102	1K ohm
R414	22543104	100K ohm
R415	22543224	220K ohm
R416	22543224	220K ohm
R417	22543332	3.3K ohm
R418	22543333	33K ohm
R419	22543183	18K ohm
R420	22543104	100K ohm
R421	22500246	Fusible 47 ohm, 1/4W, J
R422	22543103	10K ohm
R423	22543223	22K ohm
R424	22543472	4.7K ohm
R425	22543183	18K ohm
R426	22543472	4.7K ohm
R427	22500246	Fusible 47 ohm, 1/4W, J
R428	22543473	47K ohm
R429	22543224	220K ohm
R430	22543472	4.7K ohm
R431	22543473	47K ohm
R432	22543472	4.7K ohm
R433	22543473	47K ohm
R434	22543563	56K ohm
R435	22543472	4.7K ohm
R436	22543334	330K ohm
R437	22543334	330K ohm
R438	22543564	560K ohm
R439	22543223	22K ohm
R440	22543473	47K ohm
R441	22543335	3.3M ohm
R442	22543335	3.3M ohm
R443	22543104	100K ohm
R444	22543104	100K ohm
R445	22571102	Metal Oxide 1K ohm, 1W, J
R446	22571182	Metal Oxide 1.8K ohm, 1W, J
R501	22543103	10K ohm

Symbol No.	Part No.	Description
R502	22543103	10K ohm
R503	22543103	10K ohm
R504	22543103	10K ohm
R505	22543103	10K ohm
R506	22543103	10K ohm
R507	22543224	220K ohm
R508	22543224	220K ohm
R509	22543471	470 ohm
R510	22543471	470 ohm
R511	22543471	470 ohm
R512	22543103	10K ohm
R513	22543103	10K ohm
R514	22543103	10K ohm
R515	22543103	10K ohm
R516	22543103	10K ohm
R517	22543103	10K ohm
R518	22543103	10K ohm
R519	22543683	68K ohm
R520	22543224	220K ohm
R521	22543681	680 ohm
R522	22500269	Cemented 47 ohm, 5W, J
R523	22543681	680 ohm
R524	22500269	Cemented 47 ohm, 5W, J
R525	22543122	1.2K ohm
R526	22543103	10K ohm
R527	22543182	1.8K ohm
R528	22543471	470 ohm
R529	22543103	10K ohm
R530	22543124	120K ohm
R531	22543472	4.7K ohm
R532	22543103	10K ohm
R533	22543472	4.7K ohm
R534	22543472	4.7K ohm
R535	22543472	4.7K ohm
R536	22571331	Metal Oxide 330 ohm, 1W, J
R537	22543564	560K ohm
R538	22543563	56K ohm
R539	22543822	8.2K ohm
R540	22543101	100 ohm
R541	22543473	47K ohm
R542	22543104	100K ohm
R543	22543333	33K ohm
R701	22543222	2.2K ohm
R702	22543472	4.7K ohm
R703	22543222	2.2K ohm
R704	22543122	1.2K ohm
R705	22543102	1K ohm
R706	22543182	1.8K ohm
R707	22500266	Fusible 33 ohm, ¼W, J
R708	22543183	18K ohm
R709	22543101	100 ohm
R710	22543689	6.8 ohm
R801	22543471	470 ohm

Symbol No.	Part No.	Description
R802	22543471	470 ohm
R803	22543104	100K ohm
R804	22543104	100K ohm
R805	22543273	27K ohm
R806	22543273	27K ohm
R807	22543102	1K ohm
R808	22543102	1K ohm
R809	22543473	47K ohm
R810	22543473	47K ohm
R811	22543104	100K ohm
R812	22543104	100K ohm
R813	22543473	47K ohm
R814	22543473	47K ohm
R815	22543473	47K ohm
R816	22543104	100K ohm
R817	22543102	1K ohm
R818	22543393	39K ohm
R819	22543393	39K ohm
R820	22543102	1K ohm
R821	22543102	1K ohm
R822	22543102	1K ohm
R823	22543393	39K ohm
R824	22543103	10K ohm
R825	22543681	680 ohm
R826	22543471	470 ohm
R827	22543471	470 ohm
R828	22543471	470 ohm
R829	22543471	470 ohm
R830	22543471	470 ohm
R831	22543471	470 ohm
R832	22543471	470 ohm
R833	22543561	560 ohm
R834	22543561	560 ohm
R835	22543561	560 ohm
R836	22571151	Metal Oxide 150 ohm, 1W, J
SVR301	22658446	Semi-Fixed 50K ohm
SVR302	22658446	Semi-Fixed 50K ohm
SVR303	22658446	Semi-Fixed 50K ohm
SVR304	22658446	Semi-Fixed 50K ohm
SVR701	22658456	Semi-Fixed 100K ohm
SVR702	22658456	Semi-Fixed 100K ohm
SVR801	22658446	Semi-Fixed 50K ohm
SVR802	22658446	Semi-Fixed 50K ohm

Symbol No.	Part No.	Description
MISCELLANEOUS		
L301	22211263	Choke Coil, AF
L302	22211263	Choke Coil, AF
L303	22211263	Choke Coil, AF
L304	22211263	Choke Coil, AF
L701	22215110	Choke Coil, AF
EL501	22545014	Magnetic Sensor DM101A
S1	22140650	Push Switch (Input Selector)
S2	22140664	Rotary Switch (Tape Selector)
S3	22140650	Push Switch (Dolby)
S4	22140663	Push Switch (Stand-by)
S5	22140665	Slide Switch (Timer)
S6	22140662	Slide Switch (Memory)
S7	22140620	Push Switch (Rec Mute)
S8	22140620	Push Switch (REW)
S9	22140620	Push Switch (FF)
S10	22140620	Push Switch (Play)
S11	22140620	Push Switch (Stop)
S12	22140620	Push Switch (Pause)
S13	22140620	Push Switch (REC)
J1	22163824	Jack 6.5φ
J2	22163824	Jack 6.5φ
J3 ~ 7	22162387	Terminal Strips
J8	22167636	3P Terminal
J9	22167636	3P Terminal
J10	22161470	2P Terminal
J11	22161454	6P Terminal
J12	22167640	5P Terminal
J13	22167640	7P Terminal
J14	22161454	6P Terminal
J15	22163719	Jack 6.5φ
PI-1	22176529	Power Cord (EUROPE)
PI-2	22177081	Power Cord (UK)
PT1	22223547	Power Transformer (EUROPE)
PT1	22223555	Power Transformer (UK)

EXPLODED VIEW PARTS

Symbol No.	Part No.	Description
CABINET		
301	25821753	Cabinet
302	25821750	Bottom Cabinet
303	20842649	Foot
304	25865800	Front Chassis
305	25731904	LED Plate
306	25865801	Sub Chassis
307	25865802	Sub Chassis
308	25743728	P.C. Board Bracket
309	25865795	Back Chassis
310	20711683	Panel Assembly (Silver)
	20711684	Panel Assembly (Gold)
311	20874676	Push Button
312	22776666	Push Spring
313	25818621	Counter Lens
314	25822814	Indicator Cover
315	25822813	Mecha Cover
316	22866627	Label
317	25826749	Button Selector
318	25732730	Guide Slide
321	22748878	Barrier
322	22193266	Power P.C. Board
324	25727660	Joint
325	22754791	Cord Clamper
326	22184183	Cord Clamper
327	20975612	Band
328	22705506	Special Rivet
329	25826754	Push Button
330	25826762	Knob (Output) (Silver)
	25826778	Knob (Output) (Gold)
331	25826764	Knob (Right) Input (Silver)
	25826779	Knob (Right) Input (Gold)
332	25826763	Knob (Left) Input (Silver)
	25826780	Knob (Left) Input (Gold)
333	25826765	Slide Knob
334	25826781	Selector Knob (Tape)
335	25822816	Dust Cover
336	22865802	Main Label
	22865803	Main Label (For UK)
337	22866759	Label
338	25711675	Mecha Assembly
339	22193260	AF P.C. Board
340	22193264	Key P.C. Board
341	22193265	P.C. Board Sensor
342	22193262	Switch P.C. Board
343	22193263	LED P.C. Board
345	22193261	Meter P.C. Board
346	28636020	Diode TLM8102
347	22956847	Label Atten.
349	22756528	Cushion

Symbol No.	Part No.	Description
R502	22543103	10K ohm
R503	22543103	10K ohm
R504	22543103	10K ohm
R505	22543103	10K ohm
R506	22543103	10K ohm
R507	22543224	220K ohm
R508	22543224	220K ohm
R509	22543471	470 ohm
R510	22543471	470 ohm
R511	22543471	470 ohm
R512	22543103	10K ohm
R513	22543103	10K ohm
R514	22543103	10K ohm
R515	22543103	10K ohm
R516	22543103	10K ohm
R517	22543103	10K ohm
R518	22543103	10K ohm
R519	22543683	68K ohm
R520	22543224	220K ohm
R521	22543681	680 ohm
R522	22500269	Cemented 47 ohm, 5W, J
R523	22543681	680 ohm
R524	22500269	Cemented 47 ohm, 5W, J
R525	22543122	1.2K ohm
R526	22543103	10K ohm
R527	22543182	1.8K ohm
R528	22543471	470 ohm
R529	22543103	10K ohm
R530	22543124	120K ohm
R531	22543472	4.7K ohm
R532	22543103	10K ohm
R533	22543472	4.7K ohm
R534	22543472	4.7K ohm
R535	22543472	4.7K ohm
R536	22571331	Metal Oxide 330 ohm, 1W, J
R537	22543564	560K ohm
R538	22543563	56K ohm
R539	22543822	8.2K ohm
R540	22543101	100 ohm
R541	22543473	47K ohm
R542	22543104	100K ohm
R543	22543333	33K ohm
R701	22543222	2.2K ohm
R702	22543472	4.7K ohm
R703	22543222	2.2K ohm
R704	22543122	1.2K ohm
R705	22543102	1K ohm
R706	22543182	1.8K ohm
R707	22500266	Fusible 33 ohm, 1/4W, J
R708	22543183	18K ohm
R709	22543101	100 ohm
R710	22543689	6.8 ohm
R801	22543471	470 ohm

Symbol No.	Part No.	Description
R802	22543471	470 ohm
R803	22543104	100K ohm
R804	22543104	100K ohm
R805	22543273	27K ohm
R806	22543273	27K ohm
R807	22543102	1K ohm
R808	22543102	1K ohm
R809	22543473	47K ohm
R810	22543473	47K ohm
R811	22543104	100K ohm
R812	22543104	100K ohm
R813	22543473	47K ohm
R814	22543473	47K ohm
R815	22543473	47K ohm
R816	22543104	100K ohm
R817	22543102	1K ohm
R818	22543393	39K ohm
R819	22543393	39K ohm
R820	22543102	1K ohm
R821	22543102	1K ohm
R822	22543102	1K ohm
R823	22543393	39K ohm
R824	22543103	10K ohm
R825	22543681	680 ohm
R826	22543471	470 ohm
R827	22543471	470 ohm
R828	22543471	470 ohm
R829	22543471	470 ohm
R830	22543471	470 ohm
R831	22543471	470 ohm
R832	22543471	470 ohm
R833	22543561	560 ohm
R834	22543561	560 ohm
R835	22543561	560 ohm
R836	22571151	Metal Oxide 150 ohm, 1W, J
SVR301	22658446	Semi-Fixed 50K ohm
SVR302	22658446	Semi-Fixed 50K ohm
SVR303	22658446	Semi-Fixed 50K ohm
SVR304	22658446	Semi-Fixed 50K ohm
SVR701	22658456	Semi-Fixed 100K ohm
SVR702	22658456	Semi-Fixed 100K ohm
SVR801	22658446	Semi-Fixed 50K ohm
SVR802	22658446	Semi-Fixed 50K ohm

Symbol No.	Part No.	Description
MISCELLANEOUS		
L301	22211263	Choke Coil, AF
L302	22211263	Choke Coil, AF
L303	22211263	Choke Coil, AF
L304	22211263	Choke Coil, AF
L701	22215110	Choke Coil, AF
EL501	22545014	Magnetic Sensor DM101A
S1	22140650	Push Switch (Input Selector)
S2	22140664	Rotary Switch (Tape Selector)
S3	22140650	Push Switch (Dolby)
S4	22140663	Push Switch (Stand-by)
S5	22140665	Slide Switch (Timer)
S6	22140662	Slide Switch (Memory)
S7	22140620	Push Switch (Rec Mute)
S8	22140620	Push Switch (REW)
S9	22140620	Push Switch (FF)
S10	22140620	Push Switch (Play)
S11	22140620	Push Switch (Stop)
S12	22140620	Push Switch (Pause)
S13	22140620	Push Switch (REC)
J1	22163824	Jack 6.5φ
J2	22163824	Jack 6.5φ
J3~7	22162387	Terminal Strips
J8	22167636	3P Terminal
J9	22167636	3P Terminal
J10	22161470	2P Terminal
J11	22161454	6P Terminal
J12	22167640	5P Terminal
J13	22167640	7P Terminal
J14	22161454	6P Terminal
J15	22163719	Jack 6.5φ
PI-1	22176529	Power Cord (EUROPE)
PI-2	22177081	Power Cord (UK)
PT1	22223547	Power Transformer (EUROPE)
PT1	22223555	Power Transformer (UK)

EXPLODED VIEW PARTS

Symbol No.	Part No.	Description
CABINET		
301	25821753	Cabinet
302	25821750	Bottom Cabinet
303	20842649	Foot
304	25865800	Front Chassis
305	25731904	LED Plate
306	25865801	Sub Chassis
307	25865802	Sub Chassis
308	25743728	P.C. Board Bracket
309	25865795	Back Chassis
310	20711683	Panel Assembly (Silver)
	20711684	Panel Assembly (Gold)
311	20874676	Push Button
312	22776666	Push Spring
313	25818621	Counter Lens
314	25822814	Indicator Cover
315	25822813	Mecha Cover
316	22866627	Label
317	25826749	Button Selector
318	25732730	Guide Slide
321	22748878	Barrier
322	22193266	Power P.C. Board
324	25727660	Joint
325	22754791	Cord Clamper
326	22184183	Cord Clamper
327	20975612	Band
328	22705506	Special Rivet
329	25826754	Push Button
330	25826762	Knob (Output) (Silver)
	25826778	Knob (Output) (Gold)
331	25826764	Knob (Right) Input (Silver)
	25826779	Knob (Right) Input (Gold)
332	25826763	Knob (Left) Input (Silver)
	25826780	Knob (Left) Input (Gold)
333	25826765	Slide Knob
334	25826781	Selector Knob (Tape)
335	25822816	Dust Cover
336	22865802	Main Label
	22865803	Main Label (For UK)
337	22866759	Label
338	25711675	Mecha Assembly
339	22193260	AF P.C. Board
340	22193264	Key P.C. Board
341	22193265	P.C. Board Sensor
342	22193262	Switch P.C. Board
343	22193263	LED P.C. Board
345	22193261	Meter P.C. Board
346	28636020	Diode TLM8102
347	22956847	Label Atten.
349	22756528	Cushion

Symbol No.	Part No.	Description
SCREWS & NUT		
N1	70432604	Bind Head 2.6x4mm
N2	70433006	Bind Head 3.0x6mm
N3	70433014	Bind Head 3.0x14mm
N4	20795962	Bind Head 4.0x8mm (MSZM-W)
N5	72632608	Bind Head Tapping 2.6x8mm
N6	72633006	Bind Head Tapping 3.0x6mm
N7	20795992	Pan Head 3.0x8mm(MSNI-W)
N8	20795857	Pan Head Tap Tight 3.0 x 6mm (MSZM)
N9	73653000	Nut 3.0 φ
N10	70443006	Flat Head 3.0x6mm
MECHANISM		
1	F21050	Chassis Assembly
2	F41054	Shift Lever Assembly
3	F43006	Lock Arm
4	F33007	Stopper Arm
5	F46506	Stopper Arm Spring
6	G46102	RC Lever Spring
7	F43008	Shift Arm
8	F45001	Sustainer
9	F41055	Solenoid Lever Assembly
10	F41009	Solenoid Arm
11	F41007	Play Arm
12	F41053	P. Idler Lever Assembly
13	F46516	Cam Spring
14	F23027	Gear
15	F41006	Reset Spring
16	F31056	Sub Chassis Assembly
18	F42032	Motor Support
19	F43032	S. Reel Assembly
20	F46512	Back-Tension Spring
21	F43033	T. Reel Assembly
22	F41067	FF Idler Plate Assembly
23	F43035	Idler
24	F46505	Shift Lever Spring
25	F41036	F.R. Lock Arm
26	G46062	Idler Spring

Symbol No.	Part No.	Description
27	F41012	Brake Lever
28	F44506	Brake Rubber
30	F41068	Rew Arm Assembly
31	F41069	FF Arm Assembly
32	F43012	Pulley Arm Assembly
33	G46060	Push Lever Spring
34	F43004	P Idler Arm
38	F43030	Ball Guide
39		Steel Ball φ2
40	F44502	Rubber Bush
42	F31051	Head Chassis Assembly
43	F46501	Head Chassis Spring
44	22217370	R/P Head
45	22218230	E Head
46	G46057	Head Spring
47	F41047	Cord Clamp (S)
48	F41052	Pinch Roller Assembly
49	F46518	Pinch Roller Spring
50	F46511	Eject Safety Arm Spring
51	F46503	Head Chassis Return Spring (B)
52	F41043	Head Chassis Clamp Spring
53	F43002	Rec Safety Arm
54	F42017	Rec Arm Shaft
55	F41066	Switch Bracket
56	SS-5G1139	Micro Switch
57	F31065	Solenoid Bracket
58	F49001	Solenoid (A)
62	F41048	Cord Clamp (L)
63	F41075	Motor Holder
64	G44020	Motor Cushion
65	G42282	Motor Ring
66	22125587	Motor
67	F42069	Motor Pulley
68	F35002	Fly Wheel
75	F42030	Solenoid Pin
76	F41016	Rink
77	F46515	Solenoid Spring
78	F41064	Flywheel Bracket
79	G430076	Capstan Screw
80	F44504	Capstan Belt
81	F44507	FWD Belt
104	T3R-RS3- 12K-25M4	Tape Counter
105	F41079	Counter Bracket E
106	G44038	Counter Belt
119	F43050	Direct Cas, Guide (L) Assembly
120	F43051	Direct Cas, Guide (R) Assembly

Symbol No.	Part No.	Description
130	F41039	Direct Cas, C Spring
135	F49017	6P Housing A
136	F49026	6P Housing B
137	25743729	Bracket L
138	25743730	Bracket R
201		Polyslider Washer (φ3.6 x φ8.0 x 0.25t)
202		Polyslider Lock Washer (φ1.6 x φ3.5 x 0.25t)
203		Polyslider Lock Washer (φ2.1 x φ4.0 x 0.25t)
204		Polyslider Washer (φ2.6 x φ4.7 x 0.25t)
205		Nylon Washer (φ2.4 x φ5.0 x 0.5t)
206		
251		E Ring φ2.5
252		E Ring φ2.0
253		E Ring φ4.0
254		E Ring φ1.5
255		E Ring φ3.0
301		Pan Screw M2 x 4
302		Pan Screw M2 x 6
303		Pan Screw M2.3 x 10
304		
305		Pan Screw M3 x 5
306		
307		
308		Tap Tite Screw M3 x 4
309		Tap Tite Screw M3 x 6
310		Tap Tite Screw M3 x 8
311		SEMS Screw M2.6 x 8
312		SEMS Screw M3 x 4
313		SEMS Screw M3 x 6
314		Pan Screw (w/W) M2x6
315		Bind Screw (Black) M2.6 x 4
317		Pan Screw M3 x 4
351		Plain Washer (L) φ2.6

Symbol No.	Part No.	Description
ACCESSORIES		
	22164835	US1P Plug Cord
	22953954	Owner's Manual
	22951862	Warranty Card